Background Information on Data Sources and Methods

Community hospital statistics

From 1963 to September 1998, the American Hospital Association (AHA), in cooperation with member hospitals, collected data on the operation of community hospitals through its National Hospital Panel Survey. Community hospitals, which comprised more than 83 percent of all hospital facilities in the United States in 1998, include all non-Federal, short-term general, and other special hospitals open to the public. They exclude hospital units of institutions; psychiatric facilities; tuberculosis, other respiratory, and chronic disease hospitals; institutions for the mentally retarded; and alcohol and chemical dependency hospitals.

The survey sampled approximately one-third of all U.S. community hospitals. The sample was designed to produce estimates of community hospital indicators by bed size and region (American Hospital Association, 1963-98). In Tables 1 and 2, statistics covering expenses, utilization, beds, and personnel depict trends in the operation of community hospitals annually for 1994 to 1997 and quarterly from 1995 through the 3rd quarter 1998, after which data collection was discontinued.

For purposes of national health expenditures (NHE), survey statistics on revenues are analyzed in estimating the growth in the largest component of health care costs--community hospital expenditures. This one segment of NHE accounted for 30 percent of all health spending in 1998 (Cowan et al., Winter 1999). The survey also identified important factors influencing expenditure growth patterns, such as changes in the number of beds in operation, number of admissions, length of stay, use of outpatient facilities, and number of surgeries.

Medicare Trust Fund Operations

Separate trust funds finance the operations of the two parts of the Medicare program. The Hospital Insurance (HI) program, or Medicare Part A, helps pay for inpatient hospital, home health, skilled nursing facility, and hospice care for the aged and disabled. The HI program is financed primarily by payroll taxes paid by workers and employers. The taxes paid each year are used mainly to pay benefits for current beneficiaries. The Supplementary Medical Insurance (SMI) program, or Medicare Part B, pays for physician, outpatient hospital, home health, and other services for the aged and disabled. The SMI program is financed primarily by transfers from the general fund of the U.S. Treasury and by monthly premiums paid by beneficiaries. For both Medicare programs, income not currently needed to pay benefits and related expenses is held in the HI and SMI trust funds and invested in U.S. Treasury securities. (*The 1999 Annual Report of the Board of Trustees of the Federal Hospital Insurance Trust Fund*; *The 1999 Annual Report of the Board of Trustees of the Federal Supplementary Medical Insurance Trust Funds*).

Data on the financial operations of the Medicare trust funds, the Hospital Insurance trust fund and the Supplementary Medical Insurance trust fund are available from two sources. The monthly statistics on trust fund operations are published in the *Monthly Treasury Statement of Receipts and Outlays of the United States Government*, Table 8: Trust Fund Impact on Budget Results and Investment Holding (U.S. Department of the Treasury, 1998). The *1999 Annual Reports of the Board of Trustees of the HI and SMI Trust Funds* (Board of Trustees) contain a detailed accounting of all financial operations for the prior fiscal year. The reports also contain actuarial analysis of the expected operations of the trust funds in future years and analysis of the actuarial status of the funds.

Private health sector: Employment, hours, and earnings

The Bureau of Labor Statistics (BLS) collects monthly information on employment for all workers, and employment, earnings and work hours for nonsupervisory workers in a sample of approximately 305,000 establishments. Data are collected through cooperative agreements with State agencies that also use this information to create State and local area statistics. The survey is designed to collect industry-specific information on wage and salary jobs in nonagricultural industries. It excludes statistics on self-employed persons and on those employed in the military (U.S. Department of Labor, 1998 (a)).

Employment in this survey is defined as number of jobs. Persons holding multiple jobs would be counted multiple times. Approximately 5 percent of the population hold more than one job at any one time. (Other surveys that are household-based, such as the Current Population Survey [CPS], also record employment. In the CPS, however, each person's employment status is counted only once, as either employed, unemployed, or not in the labor force, which includes discouraged workers.) Once each year, monthly establishment-based employment statistics are adjusted to benchmarks created from annual establishment census information, resulting in revisions to previously published employment estimates. Tables 4, 5, and 6 present statistics on employment, nonsupervisory employment, average weekly hours and average hourly earnings for the private non-farm business sector and industries in health services.

National Economic Indicators

National economic indicators provide a context for understanding health-specific indicators and how change in the health sector relates to change in the economy as a whole. Table 7 presents national indicators of output and inflation.

Gross domestic product (GDP) measures the output of U.S. economy as the market value of goods and services produced within the geographic boundaries of the United States by U.S. or foreign citizens or companies. Constant dollar or "real" GDP removes the effects of price changes from the valuation of goods and services produced, so that the growth of real GDP reflects changes in the "physical quantity" of the output of the economy. In the most recent comprehensive revision of the National Income and Product Accounts the method for removing the effects of price changes was altered. The GDP estimates are now deflated using "chain-weighted" price indexes. This method replaces the previous fixed-weighted method of deflating the GDP estimates (U.S. Department of Commerce, 1996 & 1998).

Prices

Consumer Price Indexes

BLS publishes monthly information on changes in prices paid by consumers for a fixed market basket of goods and services. Tables 7, 8, and 9 present information on the all urban consumer price index (CPI-U) that measures changes in prices faced by 87 percent of the non-institutionalized U.S. population. The more restrictive wage earner CPI-W gauges prices faced by wage earners and clerical workers. These workers account for approximately 32 percent of the non-institutionalized population (U.S. Department of Labor, 1998 (b)).

The index reflects changes in prices charged for the same quality and quantity of goods or services purchased in the base period. For most items, the base period of 1982-84 is used to define the share of consumer expenditures purchasing specific services and products. Those shares or weights remain constant in all years, even though consumption patterns of the household may change over time. This type of index is called a fixed weight or Laspeyres index.

CPIs for health care goods and services depict price changes for out-of-pocket expenditures. The CPI for medical care services also includes an indirect measure of price change for health insurance coverage purchased directly by consumers. The composite CPI for medical care weights together product-specific or service-specific CPIs in proportion to household out-of-pocket expenditures for these items. In addition, some medical care sector indexes measure changes in list or charged prices, rather than in prices actually received by providers after discounts are deducted. In several health care areas, received or transaction prices are difficult to capture, although BLS is making advances in this area.

In the NHE, a combination of CPIs for selected medical care items, input price indexes for nursing homes, and the Producer Price Index for hospitals are used as measures of inflation for the health industry. The indexes are used to develop a chain weighted price index for personal health care to depict transaction price changes affecting the entire health care industry more accurately than does the overall CPI medical care index (Levit et al., 1999).

Producer Price Indexes

BLS produces monthly information on average changes in selling prices received by domestic **producers** for their output. These prices are presented in Tables 7, 8, and 9 as the Producer Price Index (PPI). The index is designed to measure transaction prices, and is different from the CPI, which in some cases measures list or full charge prices. The PPI is a fixed-weight or Laspeyres index, with base period weights determined by values of receipts. The base period varies among series.

The PPI consists of indexes in several major classification structures, including the industry and commodity classifications that are included in the *Health Care Indicators*. The PPI by industry classification measures price changes received for the industry's output sold outside the industry. PPI changes for an industry are determined by price changes for products primarily made by establishments in that industry. The industry into which an establishment is classified is determined by those products accounting for the largest share of its total value of shipments. The PPI by commodity classification measures price changes of the end product (end use or material composition). The classification system for PPI commodity groups is unique to the PPI, and is divided into fifteen major commodity groupings.

Although PPIs for medical commodities have existed for many years, PPIs for health service industries are relatively new. Most index series began in 1994, and the index series for the composite health services industry does not begin until December 1994. However, the PPI for hospitals began in December 1992, providing enough data for a useful time series. The PPI for hospitals is a measure of transaction prices, or net prices received by the producer from out-of-pocket, Medicare, Medicaid, private third party payer, and other sources. The PPI for hospitals should **not** be compared to the CPI for hospital and related services. Although other PPI and CPI series are somewhat comparable (for example, the PPI-Offices and Clinics of Doctors of Medicine and the CPI-Physicians' Services), the PPI and CPI for hospitals have important differences in survey scope and methodology. The PPI for hospitals measures price changes for the entire treatment path, measures net transaction price, includes Medicare and Medicaid, samples both urban and rural hospitals, and reflects total hospital revenue from all sources in its index weights. On the other hand, the CPI for hospitals measures price changes for a discrete sample of hospital services singly, measures published charges, excludes Medicare and Medicaid, samples only urban hospitals, and reflects only consumer out-of-pocket expenses and household health insurance premium payments in its index weights. These differences make a

direct comparison between the PPI and CPI hospital services indexes inappropriate.

The PPI for the health services industry is available by detailed industry groupings. For example, general medical and surgical hospitals consist of inpatient and outpatient treatments, which in turn consist of Medicare, Medicaid, and all other patients. These patient categories consist of more detail, such as DRG groupings for Medicare. While most of the data used to measure PPI price changes for health services are collected through a sample, there are specific instances where data are collected from both a sample and from price changes in Federal Regulation. This is the case for Medicare hospital inpatient services and Medicare offices and clinics of doctors of medicine. The producer price changes in Medicare hospital inpatient services are computed from a combination of a national sample of DRG's in hospitals, DRG relative weights from the PPS final rules published in the current and historical year and other adjustments. The producer price changes in Medicare offices of doctors of medicine are computed from a combination of a geographic area sample of payments under the HCFA Common Procedure Coding System (HCPCS), HCPCS updates from the November 2, 1998 *Federal Register*, and other adjustments. Because of different methodologies, these two Medicare PPIs are not comparable to the national updates computed by HCFA and published in the *Federal Register*.

Input Price Indexes

In 1979, HCFA developed the Medicare hospital input price index (hospital market basket) which was designed to measure the pure price changes associated with expenditure changes for hospital services. In the early 1980s, the skilled nursing facility (SNF) and home health agency (HHA) input price indexes, often referred to as "market baskets," were developed to price a consistent set of goods and services over time. Also in the early 1980s, the original Medicare hospital input price index was revised for use in updating payment rates for routine costs of Medicare inpatient services. All of these indexes have played an important role in helping to set Medicare payment percent increases, and in understanding the contribution of input price increases to growing health expenditures.

The input price indexes, or market baskets, are Laspeyres or fixed-weight indexes that are constructed in two steps. First, a base period is selected. For example, for the PPS hospital input price index, the base period is 1992. Cost categories, such as food, fuel, and labor, are identified and their 1992 expenditure amounts determined. The proportion or share of total expenditures included in specific spending categories is calculated. These proportions are called cost or expenditure weights. There are 26 expenditure categories in the 1992-based PPS hospital input price index.

Second, a price proxy is selected to match each expenditure category. Its purpose is to measure the rate of price increases of the goods or services in that category. The price proxy index for each spending category is multiplied by the expenditure weight for the category. The sum of these products (weights multiplied by the price index) over all cost categories yields the composite input price index for any given time period, usually a fiscal year or a calendar year. The percent change in the input price index is an estimate of price change over time for a fixed quantity of goods and services purchased by a provider.

The input price indexes are estimated on a historical basis and forecasted out several years. The HCFA-chosen price proxies are forecasted under contract with Standard and Poor's DRI (Data Resources Incorporated). Following every calendar year quarter, DRI updates its macroeconomic forecasts of wages and prices based on updated historical information and

revised forecast assumptions. Some of the data in Tables 10 through 12 are forecasted and are expected to change as more recent historical data become available and subsequent quarterly forecasts are revised. The methodology and price proxy definitions used in the input price indexes are described in the *Federal Register* notices that accompany the revisions of the PPS Hospital, HHA, and PPS SNF payment updates. A description of the current structure of the PPS input price index is in the August 29, 1997 *Federal Register* and the most recent PPS Hospital update for payment rates was published in the July 30, 1999 *Federal Register*. The latest description of the HHA regulatory input price index was published in the August 11, 1998 *Federal Register*. The latest description of the SNF input price index was published in the May 12, 1998 *Federal Register*.

Periodically, the input price indexes are revised to a new base year so that cost weights will reflect changes in the mix of goods and services that are purchased. Each revision allows for new base weights, a new base year, and changes to certain price variables used for price proxies.

Each input price index is presented in a table with both an index level and a 4-quarter moving-average percent change. The hospital input price index for PPS is in Table 10, the SNF input price index is in Table 11, and the HHA input price index is in Table 12.

Medicare Economic Index

In 1972, Congress mandated the development of the Medicare Economic Index (MEI) to measure the changes in costs of physicians' time and operating expenses. The input price change measured by the MEI is considered in connection with the update factor for the Medicare Part B physician fee schedule under the Resource-Based Relative Value Scale (RBRVS, November 22, 1996 *Federal Register*), or is used as an advisory indicator by Congress in updating the fee schedule. The MEI is a fixed-weighted sum of annual price changes for various inputs needed to produce physicians' services with an offset for productivity increases. Like a traditional Laspeyres index, the MEI is constructed in two steps. First, a base period is selected (1996 for the MEI), cost categories are identified, and the 1996 expenditure shares by cost category are determined. Second, price proxies are selected to match each relative expenditure category. These proxies are weighted by the category weight determined from expenditure amounts, and summed to produce the composite MEI. Unlike a traditional Laspeyres index, the compensation portion of the MEI is adjusted for productivity so both economy-wide productivity and physician practice productivity are not both included in the update, resulting in a double counting of productivity.

Forecasts of the MEI are made periodically throughout the fiscal year by Standard & Poor's/DRI for HCFA using several different sets of economic assumptions. Standard & Poor's/DRI produces 4 main forecasts of the MEI: a Presidential budget forecast in December and the Mid-session Review in June based on assumptions for the Federal budget exercises, the Medicare Trustees Report forecast in February based on assumptions by the Medicare Trustees, and the Medicare Premium Promulgation forecast in August based on baseline assumptions by Standard & Poor's DRI. Standard & Poor's DRI also produces forecasts of the MEI using their own economic assumptions forecast. The forecasts based on Standard & Poor's DRI assumptions are presented in Health Care Indicators. Much of the forecasted data changes as more recent historical data becomes available and the assumptions change.

The methodology, weights, and price proxy definitions used in the MEI are described in the November 2, 1998 *Federal Register*. The MEI data are presented in Table 13 as index levels and 4-quarter moving average percent changes.

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